



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,246	07/03/2003	Mario Au	5646-42XX	4741

20792 7590 12/16/2005

MYERS BIGEL SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627

EXAMINER

PORTKA, GARY J

ART UNIT	PAPER NUMBER
----------	--------------

2188

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/613,246

Applicant(s)

AU ET AL.

Examiner

Gary J. Portka

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-58 is/are pending in the application.
- 4a) Of the above claim(s) 45 and 46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35-44 and 47-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/05/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 35-44 and 47-58, drawn to method of arbitrating between asynchronously timed clock domains into a third domain, classified in class 710, subclass 243.
 - II. Claims 45-46, drawn to method of arbitrating by issuing a start command in response to detecting timing overlap, classified in class 710, subclass 240.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as an arbitration method for asynchronously timed domains, without regard to using a start command in response to timing overlap. See MPEP § 806.05(d).
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Grant Scott on December 5, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 35-44 and 47-58. Affirmation of this election must be made by applicant in

replying to this Office action. Claims 45-46 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

6. The information disclosure statement (IDS) submitted on March 5, 2004 was considered by the examiner.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 36-37, 39-42, and claims 55-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claims 36-37 and 39-42 recite "arbitrating the first arbitration results" or similarly. Since arbitration results supposedly indicate a request that is a winner or higher priority, it is unclear what it means to arbitrate a request that has higher priority.

10. Claims 55-58 recite third clock domain "synchronously timed" relative to the first and second domains. This is unclear since the first and second domains are

asynchronous to each other; it is assumed that in line with other claims, the quoted limitation is intended to be "asynchronously timed".

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 35, 38, 39-40, 43-44, 47, and 55-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Niu et al., US 6,161,160.

13. As to claims 35 and 38, Niu discloses a signal arbitration method comprising arbitrating between first and second request signals generated in first and second clock domains asynchronously timed relative to each other, to obtain first arbitration results identifying a relative queue priority of the signals, transferring the results to a third clock domain asynchronously timed relative to the first two (since the synchronization circuit 60 asynchronously to each of the first and second timing domains monitors the requests and arbitrates between reads and writes, depending upon pointers, and asynchronously to each timing domain reads and writes the memories 18 via controllers 22, see Fig. 2 and col. 7 lines 21-45, col. 8 lines 15-30, col. 8 line 64 to col. 9 line 46, col. 10 lines 40-44, col. 11 lines 24-32, col. 11 line 66 to col. 12 line 5, col. 12 line 63 to col. 13 line 24).

14. As to claims 39 and 40, Niu discloses the method substantially as described above with regard to claims 35 and 38; intermediate arbitration results may be

considered as any combination of read and write requests to a memory that are subsequently affected by further reads and writes to that memory.

15. As to claims 43 and 44, Niu discloses the method substantially as described above with regard to claims 35 and 38; any request that is forwarded to the memory may be considered having a higher priority, and any burst (see col. 13 lines 30-53) may be considered a start command, that clearly must also be arbitrated for read or write access to the memory 18.

16. As to claim 47, Niu discloses the method substantially as described above with regard to claims 35 and 38; the circuit is multi-stage as recited since all the recited functions thereof are disclosed, alternatively, the circuit is clearly comprised of multiple elements or sections that may be considered stages as recited.

17. As to claim 55, Niu discloses the method substantially as described above with regard to claims 35, 38, and 47; a refresh command buffer and arbitration circuit responsive to a refresh start command buffer and start signals are also disclosed .

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No:

6,920,540 Memory signal timing calibration.

6,249,847 Synchronous memory arbiter permitting asynchronous requests.

Art Unit: 2188

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J. Portka whose telephone number is (571) 272-4211. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gary J Portka
Primary Examiner
Art Unit 2188

December 12, 2005



GARY PORTKA
PRIMARY EXAMINER